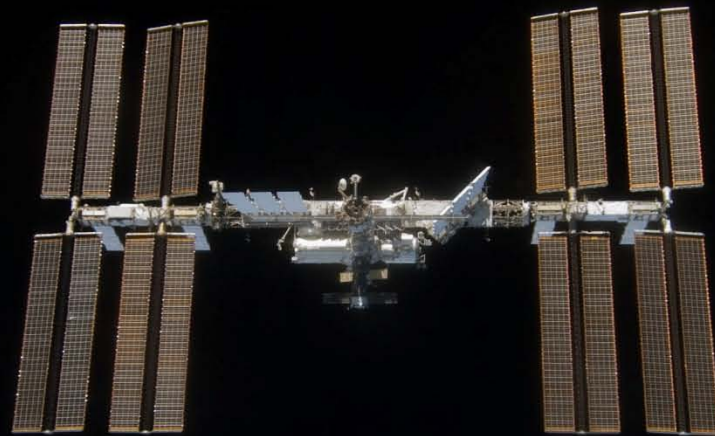


astrogenetix

Developing Medicines in Space
to Save Lives on Earth.



Why Space?

National Lab Pathfinder Strategy:

Applying knowledge from microgravity research to develop medicines in space to save lives on Earth.

Advantages of Microgravity:

Growth within the space environment induces valuable changes in microbial cells.

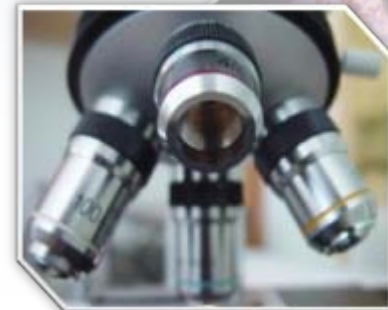
Commercial Value:

These changes provide biomarkers that are associated with:

- Growth (rate and size)
- Resistance to drug treatments
- Virulence (Infectious capabilities)

Commercial Products:

Creation of new vaccines, therapeutics and druggable targets.



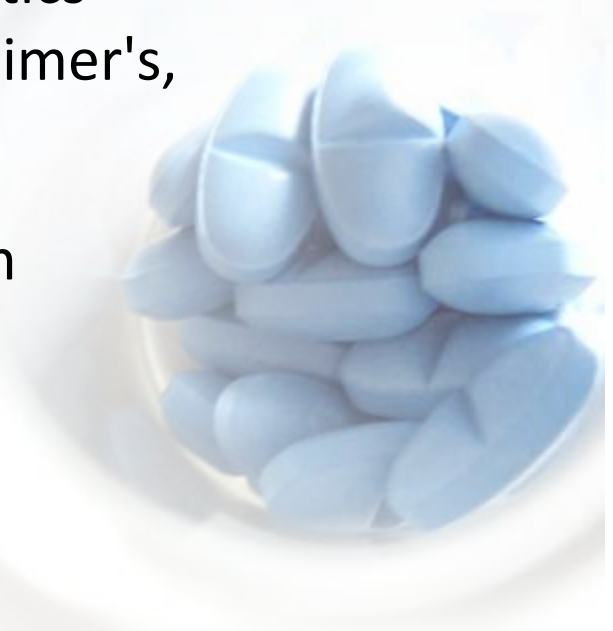
- Nine successful spaceflight payloads have been conducted in a 24 month period starting in March 2008, representing unprecedented continuous access for commercial development utilizing microgravity.

Date	Mission	Sample	Date	Mission	Sample
03/2008	STS-123	Salmonella	05/2009	STS-125	MRSA
05/2008	STS-124	Salmonella	08/2009	STS-128	MRSA
11/2008	STS-126	Salmonella	11/2009	STS-129	MRSA
03/2009	STS-119	MRSA	02/2010	STS-130	MRSA
		Streptococcus pneumonia	04/2010	STS-131	MRSA
		Candida albicans			
		Proteus mirabilis			
		Klebsiella pneumonia			
		Enterococcus faecalis			
		Listeria monocytogenes			
		Pseudomonas aeruginosa			

- Salmonella vaccine target has been identified and is moving towards FDA-IND filings.
- MRSA virulence targets have been identified and are currently being validated on STS-131.



- Pipeline with 7 additional microbes has been conducted and manifested on future flights.
- Development of valuable therapeutics such as antibiotics.
- Protein Crystal Growth identified as a valuable opportunity.
 - Critical in the development of therapeutics for very complex diseases such as Alzheimer's, Parkinson's, Lou Gehrig's, AIDS, etc.
 - ISS completion is essential for long-term sustained microgravity crystal growth.



Commercial Growth



- Given the potential value to mankind, all available ISS National Lab space should be utilized.
- Expectations for medical breakthroughs are exceptional and ISS extension to 2020 provides the commitment to explore these opportunities.
- The ISS is the only place in existence providing sustained microgravity research opportunities. Our knowledge of the results from removing the effects of gravity has just begun and must continue.

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